WHAT IS CLAIMED IS:

1. A method for culturing cells, comprising the steps of:

preparing a cell culture solution containing at least cells to be cultured and granular cell culture carriers to which the cells are allowed to adhere and grow thereon; and

applying a magnetic field to the cell culture solution so as to agitate the cell culture solution by the effect of the magnetic field, whereby the cells adhere to and grow on the surfaces of the cell culture carriers.

2. The method as claimed in claim 1, wherein each of the carriers comprises a magnetic particle having a surface and a coating layer which is provided to cover at least a part of the surface of the magnetic particle so that the cells are allowed to adhere thereto, wherein the cell culture carriers are moved in the culture solution by the application of the magnetic field, thereby agitating the culture solution.

3. The method as claimed in claim 2, wherein the intensity of the magnetic field applied to the cell culture solution is changed with the lapse of time.

4. The method as claimed in claim 2, wherein the position of the magnetic field applied to the cell culture solution is

changed with the lapse of time.

5. The method as claimed in claim 2, wherein a density of each of the cell culture carriers is in the range of 0.8 to 2.5 g/cm^3.

6. The method as claimed in claim 2, wherein when the average particle size of the cell culture carriers is defined as A μm and the maximum length of the cell allowed to adhere to the cell culture carrier is defined as B μm, A/B is 2 to 100.

7. The method as claimed in claim 2, wherein the average particle size of the cell culture carriers is in the rage of 50 to 500 μm.

8. The method as claimed in claim 2, wherein the coating layer is mainly made of a calcium phosphate-based compound.

9. The method as claimed in claim 8, wherein the coating layer is formed from fine particles of the calcium phosphate-based compound wherein the particles being partially embedded in a surface area including and adjacent to the surface of the magnetic particle.

10. The method as claimed in claim 9, wherein the particles

of the calcium phosphate-based compound are formed from porous particles, and the coating layer is formed by colliding the porous particles to the surface of the magnetic particle.

11. The method as claimed in claim 2, wherein each of the magnetic particles is formed by compounding a resin material and a magnetic material.

12. The method as claimed in claim 1, wherein the culture solution further contains magnetic particles, and the magnetic particles are moved in the culture solution by the application of the magnetic field, thereby agitating the culture solution.

13. The method as claimed in claim 12, wherein the intensity of the magnetic field applied to the cell culture solution is changed with the lapse of time.

14. The method as claimed in claim 12, wherein the position of the magnetic field applied to the cell culture solution is changed with the lapse of time.

15. The method as claimed in claim 12, wherein each of the carriers comprises a base body made of a resin material and having a surface and a coating layer which is provided to cover at least a part of the surface of the base body so that the cells

are allowed to adhere thereto.

16. The method as claimed in claim 15, wherein the coating layer is mainly made of a calcium phosphate-based compound.

17. The method as claimed in claim 16, wherein the coating layer is formed from fine particles of the calcium phosphate-based compound wherein the particles being partially embedded in a surface area including and adjacent to the surface of the base body.

18. The method as claimed in claim 17, wherein the particles of the calcium phosphate-based compound are formed from porous particles, and the coating layer is formed by colliding the porous particles to the surface of the magnetic particle.

19. The method as claimed in claim 12, wherein a density of each of the cell culture carriers is in the range of 0.8 to 1.4 g/cm^3.

20. The method as claimed in claim 12, wherein when the average particle size of the cell culture carriers is defined as A μm and the maximum length of the cell that is allowed to adhere to the cell culture carrier is defined as B μm, A/B is 2 to 100.

21. The method as claimed in claim 12, wherein when the average particle size of the cell culture carriers is defined as A μm and the average particle size of the magnetic particles is defined as C μm, C/A is 0.02 to 10.

22. The method as claimed in claim 12, wherein the average particle size of the cell culture carriers is in the rage of 50 to 500 μm.

23. The method as claimed in claim 12, wherein each of the magnetic particles is formed by compounding a resin material and a magnetic material.

24. The method as claimed in claim 12, wherein a density of each of the magnetic particles is in the range of 0.8 to 2.5 g/cm^3.

25. The method as claimed in claim 12, wherein the average particle size of the magnetic particles is in the range of 10 to 500 μm.

26. The method as claimed in claim 12, wherein each of the magnetic particles further comprises a coating layer which covers at least a part of the surface of the magnetic powder so that the cells are allowed to adhere thereto.

27. The method as claimed in claim 26, wherein the coating layer is mainly made of a calcium phosphate-based compound.

28. The method as claimed in claim 27, wherein the coating layer is formed from fine particles of the calcium phosphate-based compound wherein the particles being partially embedded in a surface area including and adjacent to the surface of the magnetic particle.

29. The method as claimed in claim 28, wherein the particles of the calcium phosphate-based compound are formed from porous particles, and the coating layer is formed by colliding the porous particles to the surface of the magnetic particle.

30. The method as claimed in claim 12, wherein a mixing ratio of the magnetic particles and the cell culture carriers is in the range of 10:90 to 50:50 in a volume ratio.

31. Cell culture carriers to which cells are allowed to adhere to and grow on surfaces thereof, wherein each of the carriers comprising:

a magnetic particle having a surface;

a coating layer which is provided to cover at least a part of the surface of the magnetic particle so that the cells are

allowed to adhere thereto.

32. The cell culture carriers as claimed in claim 31, wherein a density of the carrier is in the range of 0.8 to 2.5 g/cm^3.

33. The cell culture carriers as claimed in claim 31, wherein when the average particle size of the cell culture carriers is defined as A μm and the maximum length of the cell that is allowed to adhere to the cell culture carrier is defined as B μm, A/B is 2 to 100.

34. The cell culture carriers as claimed in claim 31, wherein the particle size of the cell culture carriers is in the rage of 50 to 500 μm.

35. The cell culture carriers as claimed in claim 31, wherein the coating layer is mainly made of a calcium phosphate-based compound.

36. The cell culture carriers as claimed in claim 35, wherein the coating layer is formed from fine particles of the calcium phosphate-based compound wherein the fine particles being partially embedded into the magnetic particle at the vicinity of the surface thereof.

37. The cell culture carriers as claimed in claim 36, wherein the fine particles of the calcium phosphate-based compound are formed from porous particles, and the coating layer is formed by colliding the porous particles to the surface of the magnetic particle.

38. The cell culture carriers as claimed in claim 31, wherein the magnetic particles are formed by compounding a resin material and a magnetic material.

39. A cell culture apparatus, comprising:

a cell culture vessel for storing a cell culture solution containing at least cells to be cultured and granular cell culture carriers to which the cells are allowed to adhere and grow thereon; and

at least one magnetic field generator for applying a magnetic field to the culture solution to agitate the culture solution by the effect of the magnetic field.

40. The cell culture apparatus as claimed in claim 39, wherein each of the carriers comprises a magnetic particle having a surface and a coating layer which is provided to cover at least a part of the surface of the magnetic particle so that the cells are allowed to adhere thereto, wherein the cell culture carriers are moved in the culture solution by the application of the

magnetic field, thereby agitating the culture solution.

41. The cell culture apparatus as claimed in claim 39, wherein the culture solution further contains magnetic particles, and the magnetic particles are moved in the culture solution by the application of the magnetic field, thereby agitating the culture solution.

42. The cell culture apparatus as claimed in claim 39, wherein the magnetic field generator is constructed so that the intensity of the generated magnetic field is changed with the lapse of time.

43. The cell culture apparatus as claimed in claim 39, wherein the magnetic field generator is constructed so that the position of the generated magnetic field is changed with the lapse of time.

44. The cell culture apparatus as claimed in claim 39, wherein the magnetic field generator is arranged around the outer periphery of the cell culture vessel.

45. The cell culture apparatus as claimed in claim 39, wherein the magnetic field generator is provided so as to come into contact with the culture solution.

46. The cell culture apparatus as claimed in claim 39, wherein the magnetic field generator is arrange in the vicinity of the liquid surface of the culture solution contained in the cell culture vessel.

47. The cell culture apparatus as claimed in claim 39, wherein the at least one magnetic field generator includes two or more magnetic field generators.